

AUXILIARY WINDSHIELD SUN VISOR

INVENTOR

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## AUXILIARY WINDSHIELD SUN VISOR

### CROSS REFERENCE TO RELATED APPLICATIONS

Not Applicable.

### BACKGROUND OF THE INVENTION

#### 1. Field of the invention.

**[0001]** The present invention relates to windshield sun visors. In particular, it relates to removable sun visors for spanning the distance between the ends of conventional vehicle visors.

#### 2. Description of the related art.

**[0002]** It is well known that one problem with the conventional sun visors in vehicles is that even when both the left and right visors are placed in the downward position there is a space formed between them where the sun is not blocked; especially when the sun is lower on the horizon. This space cannot be blocked by the conventional sun visors since they do not reach that area of the windshield behind the rear view mirror. A solution is to provide an auxiliary sun visor, which is easily secured between the windshield and the rear view mirror to bridge the space between the conventional sun visors.

**[0003]** Up to now few examples of such sun visors exist. One example, U.S. Pat. No. 5,979,967, to Poulson, discloses an auxiliary sun visor in the form of an oblong panel that is placed in front of a rear view mirror to bridge the space between the standard sun visors of a motor vehicle. The panel is held place with hook and loop fastening members adhered to one surface of the panel and on the forward surface of the rear view mirror to attach the panel to the rear view mirror. A problem with this design is that it requires permanently attaching fastening members to the front of the mirror, and is not quickly and easily installed or removed.

**[0004]** Another example, U.S. Pat. No. 5,333,927, to PreJean, discloses a sun shielding device that is a flat and flexible and resilient lightweight plate having a surface which may be placed against the inside of the vehicle's windshield, between the sun visors, to block the sun's rays. The sunshade is thick enough to contain a pocket for holding accessories and is held

in place by either wedging it between the windshield and the rear view mirror or using by a separate suction device.

**[0005]** Yet another example, U.S. Pat. No. 5,333,927, to Konishi, discloses an auxiliary visor that is designed for use in case the rear view mirror is installed on a front roof rail, ceiling member, or the like, by means of a stay. The auxiliary visor includes a shield disposed between the sun visors, a mounting shaft fixedly installed on the shield having an exposed portion on the mounting shaft. A mounting bracket is installed on a mounting stay of the rear view mirror and the mounting bracket has a gripping portion in the form of a part-circular cross section for supporting the exposed portion of the mounting shaft.

**[0006]** While the foregoing examples offer some utility, a major disadvantage in each lies in the fact that they are not deformable for selectively filling the gap above and behind a rear view mirror, which is not covered by the existing sun visors, when the vehicle changes in direction. The foregoing examples also do not provide for quick and easy installation and removal, are of a rather complex construction, and in most cases require the installation of mounting members for securing the sun visors either to the mirror or the windshield, which limits their use to that of a single motor vehicle. Thus, it is desirable to provide a deformable auxiliary sun visor for selectively filling a gap above and behind the rear view mirror which is not covered by existing sun visors, but which is universal for use in a number of motor vehicles and is lightweight and simple in construction. The present invention satisfies these needs.

## BRIEF SUMMARY OF THE INVENTION

**[0007]** It is therefore an object of the present invention to provide an auxiliary sun visor for selectively filling in the gap above and behind a rear view mirror that is not covered by the conventional sun visors.

**[0008]** It is another object of the present invention to provide an auxiliary sun visor that is simple in construction and universal in use for more than one motor vehicle.

**[0009]** It is another object of the present invention to provide an auxiliary visor that is easily installed or removed while filling the gap above and in front of a rear view mirror for use while the vehicle is in motion.

**[0010]** It is yet another object of the present invention to provide an auxiliary visor which is lightweight and simple in construction.

**[0011]** To overcome the problems of the prior art methods and in accordance with the purpose of the invention, as embodied and broadly described herein, briefly, in a motor vehicle wherein a rear view mirror is attached in spaced relationship to an interior of a windshield by a support arm disposed intermediately between a pair of spaced sun visors, in combination, a sun visor, is provided which includes a panel envelope formed of an elastic material defining a predetermined perimeter of a predetermined expanse having front and back surfaces, a single closed loop of a spring-like material located about an interior perimeter of the envelope, the loop dimensioned to have an expanse which is greater than the expanse of the envelope so as to stretch the envelope, and wherein a complaint compressive spring force of the loop retains the sun visor between a roof line adjacent to the interior of the windshield and the support arm while the vehicle is in motion.

**[0013]** Additional advantages of the present invention will be set forth in part in the description that follows and in part will be obvious from that description or can be learned from practice of the invention. The advantages of the invention can be realized and obtained by the apparatus particularly pointed out in the appended claims.

#### BRIEF DESCRIPTION OF THE SEVERAL VIEWS OF THE DRAWINGS

**[0014]** The accompanying drawings, which are incorporated in and which constitute a part of the specification, illustrate at least one embodiment of the invention and, together with the description, explain the principles of the invention.

**[0015]** FIG. 1 is a fragmentary elevation view of the interior of a motor vehicle showing the auxiliary sun visor mounted in its operative position between the conventional visors and straddling the mounting post of the rear view mirror.

**[0016]** FIG. 2 is a sectional view of a preferred embodiment of the present invention showing one wall of the panel envelope and location of the spring wire used for stretching the envelope to form the panel.

**[0017]** FIG. 3 is a sectional view of another embodiment of the invention showing one wall of the fabric envelope and the location of the spring wire for stretching the envelope, together with a slot for receiving the mirror support post.

**[0018]** FIG. 4 is a side view of the auxiliary visor shown in Figure 3.

**[0019]** FIG. 5 is a sectional view along section 5 of Figure 3.

**[0020]** FIG 6 is a perspective view of a third embodiment of the present invention.

### DETAILED DESCRIPTION OF THE DRAWINGS

**[0021]** Unless specifically defined otherwise, all technical or scientific terms used herein have the same meaning as commonly understood by one of ordinary skill in the art to which this invention belongs.

**[0022]** Although any methods and materials similar or equivalent to those described herein can be used in the practice or testing of the present invention, the preferred methods and materials are now described. Reference will now be made in details to the presently preferred embodiments of the invention, examples of which are illustrated in the accompanying drawings wherein like numerals represent like features of the invention.

**[0023]** The invention is a novel auxiliary sun visor for a vehicle having a pair of sun visors and a rearview mirror disposed between the sun visors. The sun visor fits between the roofline of the vehicle and the mirror support arm on the windshield. The sun visor is a fabric covered spring wire, or plastic rod, formed to be larger than the space it will occupy while in service. In use, it is compressed into the space in front of the mirror, and the tendency of the spring wire to force outwardly causes a compliant compressive force to hold the sun visor in place. The visor may also include a reflective surface for reflecting light away from the interior of the vehicle.

**[0024]** Figure 1 shows a portion of the interior of a motor vehicle. Conventional visors **12** and **14** are pivotally mounted above the steering wheel **16** and above the seat adjacent to the driver. As illustrated in the drawing figure, when these visors **12** and **14** are moved downwardly to their operative position, they cover the upper portions of the windshield **18**. The

windshield **18** of the vehicle cooperates with the rear view mirror **20** assembly so that the auxiliary visor **10** may be compressed in front of the mirror **20** between the mirror support arm **22** and the roofline **24** of the vehicle for blocking the sun's rays. The typical mirror **20** assembly for most motor vehicles has the support arm **22** extending away from the windshield **18** for supporting the rear view mirror **20**.

[0025] Referring now to Figures 2, 3, and 5, the sun visor **10** is made of an envelope of a flexible elastic material, such as nylon. In its preferred form, the envelope is of an elongated generally elliptical shape having an inner spring wire **30** sandwiched between the outer layers **32, 34** that form the envelope. The outer cover layers **32, 34** are joined **36** along opposed peripheral edges to form a unitary panel envelope. One suitable procedure for joining **36** the outer layers **32, 34** along their outer peripheral edges is by sewing a hem in the outer cover layers **32, 34** or heat sealing the layers **32, 34** together. A slot **38**, may but need not, extend from a lower central periphery **40** of the visor **10**. The slot **38** itself is sized and proportioned to be of a width so as to permit easy clearance of the support arm **22**, or post, supporting the rear view mirror **20**, when the visor **10** is compressed into position in front of the rear view mirror **20**, as shown in Figure 1. It will be apparent to one skilled in the art that the width of the slot **38** may be varied according to different widths and sizes of mirror support arms **22** for mounting of the rear view mirror **20**, and, as shown in Figure 6, the slot **38** may be dispensed with entirely when used with mirror assemblies in which support arms **22** would not interfere with coverage of the visor **10** in bridging the gap between existing visors **12, 14**.

[0026] Figures 3 and 4 illustrate a second embodiment of the present invention wherein the visor **10** panel perimeter is generally of a rectangular shape, with or without the slot **38**, as described above. The spring wire **30** is preferably a single wire formed into a loop by fastening its ends together with a bushing **42** or a weld. Figure 4 is a side view of the visor **10**, shown in Figure 3, and illustrates the lightweight and narrow construction of the visor **10** for ease in installation, removal, and storage. The width is preferably approximately 0.32 cm, but it may vary according to the availability of existing materials and manufacturing constraints. This narrow construction further allows the visor **10**, while in use, to fit adjacent to the windshield **18** so as not to interfere with the normal space between the front of the mirror **20** and the windshield **18**. Moreover, in combination with the compliant compressive force of the visor **10** which holds

it in place between the roofline **24** and the mirror support arm **22**, this narrow configuration allows for a selective movement of the visor **10** to different positions in front of the mirror **20**.

[0027] Turning now to Figure 5, outer coverings **32, 34** forming the visor **10** panel envelope are preferably joined at **36** with a hem along their peripheral edges created by sewing or heating. In this manner, outer coverings **32, 34** of the envelope provide a double wall of fabric protection along the periphery of the envelope where the spring wire **30** biases against the outer coverings **32, and 34**. This construction improves the durability of the visor **10** in resisting the spring wire **30** from abrading through the envelope during use.

[0028] In order to secure the panel defining the visor **10** in front of the mirror **20**, near the interior surface of the windshield **18**, the spring wire **30** is quickly and easily compressed at any point along its periphery, inserted over the arm **22**, or post, of the rear view mirror **20** and under the roof line **24** of the windshield **18** where the compliant compressive force of the spring wire **30** retains the sun visor **10** between the roofline **24** and the support arm **22** while the vehicle is in motion. In this manner, the visor **10** is easily and selectively adjusted in any position to effectively bridge the entire gap, or a portion thereof, between the existing visors **12, and 14** of many vehicle types. Preferably, the visor **10** is dimensioned so that the ends **33, 35** extend slightly beyond the ends **13, 15** of the existing visors **12 and 14**, as illustrated in Figure 1.

[0029] While the present invention has been described in connection with the illustrated embodiments, it will be appreciated and understood that modifications may be made without departing, from the true spirit and scope of the invention.